Marek BABIUCH *
VÝVOJ WEB APLIKACÍ NA KATEDRÉ AUTOMATIZAČNÍ TECHNIKY A ŘÍZENÍ
WEB APPLICATION DEVELOPMENT AT THE DEPARTMENT OF CONTROL SYSTEMS
AND INSTRUMENTATION

Abstract
Článek popisuje vývoj web aplikací na katedře automatizační techniky a řízení. Tyto aplikace jsou vyvíjeny pro podporu výuky a informačního systému katedry. Článek představuje ukázky aplikací které jsou vytvořeny technologiemi ASP.NET s podporou ADO.NET, PHP a databázovým serverem MySQL. Prezentovaných výsledků a také tvorba dalších aplikací na podporu výuky bylo dosaženo v rámci řešení výzkumného projektu MSM 272300012.

Abstract
The contribution describes the development of web applications at the department of control systems and instrumentation. These applications have been developed for education support and for department information system. The paper shows the examples of applications, which are implemented by ASP.NET technology with ADO.NET libraries, PHP and database server MySQL. The presented results and also design of another application for supporting education have been obtained during the solving of research project MSM 272300012.

Klíčová slova: ASP.NET, MySQL, PHP, xml, web aplikace
Key words: ASP.NET, MySQL, PHP, xml, web application

1. INTRODUCTION

The students cooperate on the production of software support, especially on web support for their diploma thesis, mainly on applications for utilization for subjects as Automation or Measurement and Sensors Engineering. These diploma works, after their completion are immediately plugged into the education process. The advantage is a presentation of subjects as well as the Department of Control Systems & Instrumentation, but also these applications are used to a large extent in the tutorials of subjects at the department. However, the decisive advantage for diploma students is also the interconnection between the area of Automation Engineering and Applied Informatics.

2. WEB APPLICATIONS AT THE DEPARTMENT

PHP language as a tool for creating dynamic and interactive web pages showing a phenomena emergence between script languages and became the most widely used engine of internet applications: simple counters for access of even very demanding e-shops, magazines, discussion forum, chats, e-mail services or applications for mobile phones. The success of PHP acceptance was supported by the fact that almost nothing is needed for its use: it is available from web free, easily installed, runs under Windows and Linux, it has a high output and no complicated syntax. PHP can be easily combined with XML language, connected with MySQL database, integrated with LDAP protocol and enables dynamic working with graphic.

The following application was created in PHP scripted language with SQL server support. This application, which supports the education at the Laboratory of Sensors and Measurement, is an

* Ing., Ph.D., Department of Control Systems and Instrumentation, VSB-Technical University of Ostrava, Ostrava, Czech Republic, marek.babiuch@vsb.cz
application program module for student attendance and evaluation. This application module removes the use of a paper attendance list and makes it easy for the tutor to have a checking system for attendance and giving credits.

This application also enables evaluating students during the semester. A student is evaluated for giving records from the exercise – a particular measurement task and a credited project. Of course, the evaluation listed above is possible to complete within a web application.

![Diagram](image_url)

**Figure 1 –** Typical view of the parametric search engine

The administrators of this application are the tutors, who give lessons at these laboratories. The tutor must complete an appropriate web form for creating a concrete attendance list at the beginning of a term. This application is user friendly and has intuitive commands. There is an updated timetable for the tutor after the generation of attendance list (see Figure 1).
The attendance list of a study group is shown after clicking on particular subject. The tutor of the practical exercise completes the names of students. For the attendance 14 boxes (number of weeks of the term) are prepared, the other boxes are available for evaluation throughout the term. Students' acquired points are automatically adding up, so the actual state of point evaluation can be seen. Of course, the students may look at these pages for their results.

At the present time at the department we are interesting in development of web application for supporting education and information systems of the department service with using technology ASP.NET. In the near future we will prefer this technology at our department. [Babiuch, Smutný & Škuta 2004]. We are already paying great attention to this technology in the subjects Information technology and Programming application for Internet, see following chapter.

3. ASP.NET WEB APPLICATIONS

Technology of Active Server Pages .NET (ASP.NET) offers the most developed web platform at the present time. This technology is much more than just a new version of a classic ASP. It is a robust solution for the complex development of web portals. It offers a range of advanced components for server elements, web services, and improved options for application configurations, status control, reliability, security and other components.

All web clients communicate with ASP.NET applications through Internet Information Services (IIS). IIS deciphers and optionally authenticates the request. In addition to the built-in ASP.NET features, an ASP.NET application can use the low-level security features of the .NET Framework.
The Department of Control Systems and Instrumentation also pays great attention to this state-of-the-art technology for creating web applications [Landryová 2004, Kulhánek 2004, Fojtík 2004, Heger, M & David, J. 2001]. The following figure (Fig. 3) shows an application created in ASP.NET. This application is designed for a fast search in a datasheet of micro-controllers, which are used during exercises in a lab.

**Figure 3** – ASP.NET application designed for micro-controller education

These datasheets were not simply available so far, required information was possible to find only through difficult searching at the pdf formats of huge amount of documentation at Microchip web server. This application is implemented as fast and comfortable search of instruction and datasheet file of most popular type of micro-controllers at the department. Application is part of thesis and it is available at web hosting ASP.NET server aspweb.cz.
4. CONCLUSIONS

This contribution deals with creating a web application at the Department of Control Systems and Instrumentation. It proved the emphasis put on the programming literacy of students in the area of web applications. At the present time, except the classic subjects of automation, other subjects also from the area of information technology are taught. It shows, that the experience in both fields is well complemented, attractive and contributes to a large extent not only to the quality of the study, but creates an advantageous starting position for student assertion in practice. This paper dealt only with some tasks of the web application programming, so the technologies studied by the students here at the Department could be demonstrated. The staff of the Department of Control Systems and Instrumentation aims for continuous growth in the mentioned areas in order to introduce students to state-of-the-art techniques in the field.

5. REFERENCES


